University of Gdańsk

Subject card

Subject name and code	Non-native Species in the Marine Environment - lecture, PG_00204929		
Field of study	Oceanography		
Date of commencement of studies	October 2026	Academic year of realisation of subject	2027/2028
Education level	Master's studies	Subject group	Obligatory subject group in the field of study Optional subject group Subject group related to scientific research in the field of study
Mode of study	full-time studies	Mode of delivery	at the university
Year of study	2	Language of instruction	Polish
Semester of study	3	ECTS credits	1.0
Learning profile	academic	Assessment form	credit
Conducting unit	Laboratory of Ecophysiology and Bioenergetics -> Department of Marine Ecology -> Faculty of Oceanography and Geography -> Rector		
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. Monika Normant-Saremba	
	Teachers		

Lesson types

Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
Number of study hours	15.0	0.0	0.0	0.0	0.0	15

E-learning hours included: 0.0

Learning activity and number of study hours

Learning activity	Participation in didactic classes included in study plan	Participation in consultation hours	Self-study	SUM
Number of study hours	15	1.0	9.0	25

Subject objectives

Raising knowledge about alien species in marine ecosystems, with particular emphasis on their impact on biodiversity and ecosystem services, both on a local and global scale.

Learning outcomes

Course outcome	Subject outcome	Method of verification
[OCEANMU2-W04] has an in-depth understanding of the latest research trends in oceanography, as well as the possibilities for practical application of related achievements; evaluates their usefulness and limitations in solving scientific research problems, and critically analyzes and assesses their applicability	Knows and understands in depth the latest trends in research related to alien species in the marine environment, as well as the possibilities of practical application of scientific achievements in this field.	[SW4] test/exam - oral or written
[OCEANMU2-W06] knows and identifies potential threats to the marine environment on a local and global scale resulting from strong anthropopressure, predicts their effects on various time and space scales	Knows and identifies potential threats to the marine environment on a local and global scale resulting from the introduction of alien species, and predicts their effects.	[SW4] test/exam - oral or written
[OCEANMU2-W07] knows and understands legal regulations, principles of sustainable development of the marine environment, its protection and management of the marine environment and its resources	Knows and understands the basic legal regulations regarding alien species and methods of dealing with them in order to protect and manage the marine environment and its resources.	[SW4] test/exam - oral or written

<table>
<tr><td>Subject contents</td><td colspan="3">Terminology and legal aspects (national, regional, EU and international regulations); Pathways and vectors of introduction of alien species into the marine environment; Examples of the most invasive alien species in the marine environment; The Baltic Sea as a sea of alien species; Factors determining the success of introduction and the establishment of an alien species outside native range; Effects on biodiversity and related ecosystem services resulting from the introduction of alien species; Management of alien species.</td></tr>
<tr><td>Prerequisites and co-requisites</td><td colspan="3"></td></tr>
<tr><td>Assessment methods and criteria</td><td colspan="3"><table><tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr><tr><td>Test/ exam</td><td>51.0%</td><td>100.0%</td></tr></table></td></tr>
<tr><td rowspan="3">Recommended reading</td><td>Basic literature</td><td colspan="2">Głowaciński Z., Okarma H., Pawłowski J., Solarz W. (ed.), 2011.Gatunki obce w faunie Polski. Instytut Ochrony Przyrody PAN, Kraków.

Keller R.P., Lodge D.M., Lewis M.A., Shogren J.F., 2009. Bioeconomics of Invasive Species. Oxford University Press.

Leppäkoski E., Gollasch S., Olenin S. (eds), 2002. Invasive Aquatic Species of Europe. Distribution, Impacts and Management. Kluwer Academic Publishers, The Netherlands.

Rilov G., Crooks J.A. (eds), 2009. Biological Invasions in Marine Ecosystems. Ecological, Management, and Geographic Perspectives. Springer-Verlag Berlin Heidelberg , ISBN: 978-3-540-79235-2, 641 pp.

Ruiz G.M., 2003. Invasive Species : Vectors and Management Strategies. Island Press.</td></tr>
<tr><td>Supplementary literature</td><td colspan="2">Lockwood J.L., Hoophes M.F., Marchetti M.P., 2007. Invasion Ecology. 4th Edition. Blackwell Publishing.</td></tr>
<tr><td>eResources addresses</td><td colspan="2"></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td colspan="3">Alien species, invasive alien species and naturalized species, primary and secondary introduction, invasion process model, international conventions and guidelines and EU directives, monitoring and early detection, methods of removing alien species from the environment, control and management, alien species in aquaculture and their use by humans, the hundred most invasive species in the world, impact on biodiversity and human economy, alien species in the Baltic Sea and their origin.</td></tr>
<tr><td>Work placement</td><td colspan="3">Not applicable</td></tr>
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